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System Switchers Simplify Projector Control

System 7SC
(Video switcher with built-in scaler)

Projector technology is evolving at a rapid pace. Several years ago, only a handful of projector manufacturers existed, and each made only a few different products. Today, the projector market has grown to include several dozen manufacturers with a whole range of product offerings.

The expansion of the projector market has given A/V professionals a wider range of projector options to choose from than ever before. There is a projector available that will meet the needs of virtually any application. But what about projector control options? Have those control options kept up with the pace of projector development, particularly with the increasing number of applications that have more than one source for image output?

Projector manufacturers initially answered this question by making their own, proprietary switchers. However, these switchers could only work with and control their own brand of projectors. When there were only a few projector manufacturers and a few projector models, this solution was a viable one for professionals in the A/V industry. But today, most A/V dealerships stock many different brands of projectors and need system switchers that work with them all. This is especially true when the original projector needs to be replaced with something newer, smaller, and brighter.

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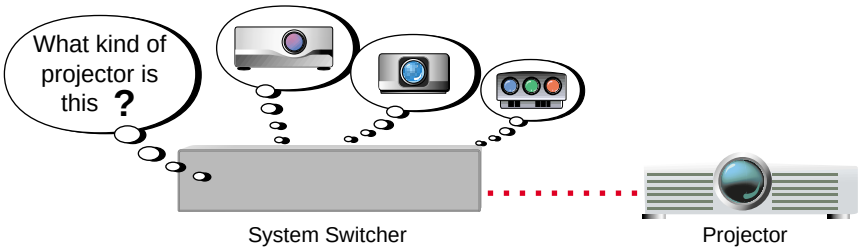


Figure 1. Extron system switchers can be configured to work with any brand of projector.

To help resolve these issues, Extron built universal projector control into our entire line of system switchers. (See **Figure 1**.)

Universal Projector Control

Ten years ago, Extron introduced the first universal system switchers, the System 8 & 10. These switchers allowed for basic power on/off and input switching capabilities between the switcher and any brand of projector. Universal Projector Control is now a standard feature of all Extron system switchers including the new System 5cr Plus, System 8 and 10 Plus, System 4LDxi, and the new System 7SC.

Extron's system switchers offer universal control for virtually every projector in the market. To meet the needs of changing applications, the different models in the system switcher line use different methods of communication with the projectors, ranging from bi-directional RS-232 to infrared (IR).

These system switchers can all be addressed through RS-232, including commands from the switcher to the projector. This means there are advantages to using the universal projector control in conjunction with a control system. Typically, if a control system is being used to control the projector, and the projector has to be replaced, an experienced programmer will be needed to edit or create new code. However, if projector commands are routed from the control system through these switchers, the control system commands will remain the same when a new projector is installed. To communicate with the new projector, all that's required is a quick reconfiguration of the switchers.

Now, let's take a closer look at how each of these system switchers operates, and how easily they can be configured for projector control.

System 5cr Plus Switcher

Extron's new System 5cr Plus is a five input, one output switcher. This unit was designed with the smaller conference room or training facility in mind. The System 5cr Plus provides a total of five inputs—two for RGBHV, two for composite or S-video, and one that is configurable for composite video, S-video, or RGBHV. One of the RGBHV inputs, a 15-pin HD connector, is located on the front panel. This makes connecting a laptop very easy. For every video input, there is also a stereo audio input. The System 5cr Plus also includes a small stereo amplifier for small to medium sized rooms.

The System 5cr Plus is compatible with most projectors. Programming for projector control is done entirely by users in the field. Programming can be accomplished in one of two ways—either through IR learning or by using the supplied control software to download the specific projector driver from the Extron Web site.

IR learning makes setup and operation simple and customizable. There is no hardwired communication link. To program the switcher to transmit commands to a projector, point the projector's remote control at the IR receiver on the front panel of the System 5cr Plus, and press the button for desired command. (See **Figure 2**.)

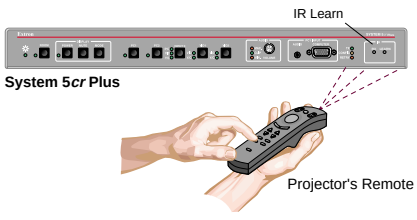


Figure 2. Programming the System 5cr Plus for a projector using IR learning.

The System 5cr Plus ships with control software that manages basic switching and switcher configuration. To configure for a projector, this software is used with projector drivers that can be downloaded from Extron's Web site.

The System 5cr Plus also offers several different options for switcher and projector control: through its own front panel, using an Extron IR 40 remote control, through RS-232 control software, or using an Extron mountable keypad called the SCP 100P, SCP 250, or SCP/AAP A.

In addition to universal projector control, the System 5cr Plus has a room control feature. This feature lets users automate a single function in a presentation room, such as lighting, screen settings, and lowering and raising the projector lift, making the switcher an ideal control solution for smaller applications.

System 8 and 10 Plus Switchers

The System 8 and 10 Plus Switchers are an all-inclusive solution that enables multi-brand projector control from one switching device. These switchers are designed for large-scale A/V systems integration and staging applications. Both feature universal inputs (RGBHV, RGBS, RGsB, S-video, and composite video signals) and stereo audio switching. The two differences between the System 8 Plus and the System 10 Plus are the number of inputs and the bandwidth. The eight input System 8 Plus offers 300 MHz (-3dB) bandwidth, and the ten input System 10 Plus offers 250 MHz (-3dB) bandwidth .

The System 8/10 Plus communicates bi-directionally using a projector-specific communication adapter between the switcher and projector. The System 8/10 Plus switchers are initially configured at Extron to work with a specific projector. Reconfiguring the System 8/10 Plus switcher to work with a different projector can be easily accomplished in the field by changing rotary switches. In some instances, updating the switcher firmware may be necessary.

System 4LDxi Switcher with Line Doubler

The System 4LDxi is a four input, one output projector control switcher with a built-in line doubler. It's ideal for environments where conventional NTSC, PAL, or SECAM video is being displayed on a large screen. Four inputs

accept composite video, S-video, and RGB video. Each input also accepts stereo audio. The switcher's line doubler increases the horizontal scan rate of the input signal by two times, making the output comparable to a 640 x 480 VGA signal.

To control projectors through the System 4LDxi, Extron engineers develop code for each projector on the market. When ordering a System 4LDxi, customers must indicate what projector it will be working with. The switcher is then configured for a specific projector before it ships from Extron's facility. These units communicate with projectors via RS-232 using a projector-specific communication adapter.

If a projector is replaced in an installation, this switcher can be easily upgraded in the field to work with the new device. Often, all that is required is a quick adjustment to internal rotary switches. In some cases, updating the switcher firmware may be necessary. If so, Extron can supply an appropriate firmware upgrade that can be plugged into the switcher (see **Figure 3**).

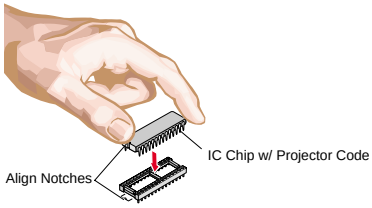


Figure 3. Updating firmware in Extron's system switchers is a snap.

The comm adapter, which is used to physically connect to the projector, may or may not have to be changed to be compatible with the new projector. Your Extron Customer Support Representative will be able to tell whether or not your existing comm adapter will work.

System 7SC Switcher with Video Scaler

The new System 7SC is a seven input, dual output multi-format switcher with a built-in video scaler. This switcher is ideal for rental, staging, and permanent installations using all types of high-resolution video display devices. Six inputs are configurable for composite video, S-video, component, or RGB video. The seventh input on the front panel is a quick connection point for composite video, S-video, or computer-video. Each input also accepts audio.

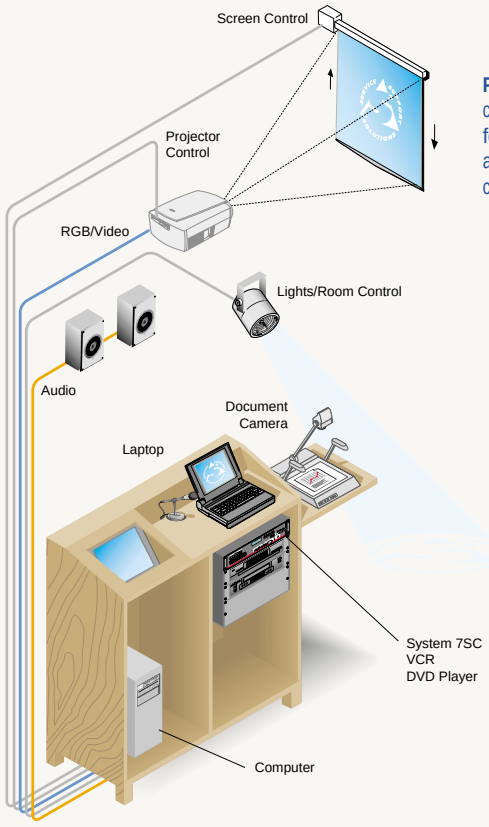


Figure 5. Universal projector control with room control features makes the System 7SC an all in-one solution for complex applications.

The System 7SC provides two methods of projector control—RS-232 or IR. There are also two methods of configuring the switcher for projector control. The first consists of downloading pre-configured control drivers from the Extron Web site. Downloading these drivers will require use of the easy-to-use control software that ships with this switcher.

For situations where more customizable projector control is desirable, the second method of configuration is available. Installers can customize the System 7SC through IR learning or by entering custom, uni-directional RS-232 commands. These commands can be programmed to any button on the front panel.

Creating custom projector control drivers is simple with the System 7SC. All that's needed are projector codes (found in the projector manual), a computer, a few cables, and the supplied control software. (See **Figure 4** below.)

Like Extron's other system switchers, the System 7SC's functions can all be addressed via RS-232. This makes changing out the projector in applications that use a control system very easy. To maintain projector control, simply download a different projector driver to the switcher.

The System 7SC also includes two room control features. These room control features can be programmed to control the lighting, raising and lowering of the screen, opening and closing of the window blinds, etc. Universal projector control coupled with the room control features makes the System 7SC an all-in-one solution for more complex application environments. (See **Figure 5** above.)

Extron's system switchers provide a universal solution to projector control. Whatever the application, these switchers make universal projector control a snap.

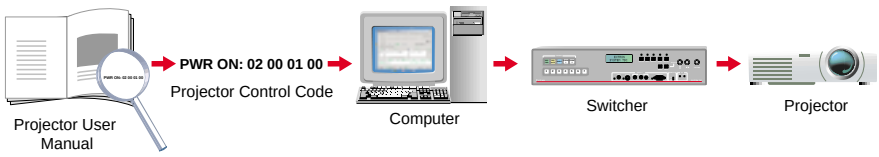


Figure 4. Creating custom projector control drivers with the System 7SC.

by Lee Dodson, Vice President of Marketing

Marketing is Everyone's Job

Welcome to the newest feature in ExtroNews. The Marketing Matters column will focus on keeping you informed of information, tools, and issues that are meaningful and useful to you in your efforts to market your organization's value to the fullest.

The role that marketing plays in business is often misunderstood and its functions overlooked in the daily priority shuffle we all face in these busy times. Just as surely as market conditions continually change, so must we monitor and adapt our mixture of marketing strategies to keep pace and remain on the competitive edge. In its simplest form, marketing is the act of selling in a market. Many areas fall into this realm, but it can be generalized as activities an organization does to attract customers, add value, and develop methods of serving customer needs. Clearly this is something we all have a vested interest in.

The extent to which you match your organization's products and services to your customers' needs often becomes the essence of how your customer perceives you and ranks you among your competitors. Have you ever wondered if the things you normally do make a difference to your customers? Are you sure that you are using the best resources? Are there ways to enhance your systems? This column will suggest methods and techniques you can use to address these and other issues.

Connecting the services and value you create to the needs of your customer in the best and most efficient way should always be high on a professional's list. We must all continually evaluate our effectiveness in this area and enhance our ability to gain knowledge, utilize resources, create value, and deliver it effectively to whichever market we focus on. This new column will discuss matters related to the effective marketing of professional A/V systems, whether that involves understanding your resources, communicating better with your customers, working more efficiently, or increasing the value you deliver to your customer. Extron believes in the value added to the professional A/V market by A/V professionals and we hope that issues communicated through this column will convince you that Marketing does matter.

And the Winner Is....

Results of Extron's Annual Newsletter Survey for 2000

All of us here at Extron would like to extend a big thank you to the overwhelming number of people who took the time to participate in our Annual Newsletter Survey contest. This year's respondents provided an enormous amount of valuable feedback, such as which sections of the newsletter are most useful to you and what kinds of additional resources you'd like to see added. We will use your comments to make ongoing improvements to the type of information offered to you through ExtroNews.

And now for the news everyone is waiting for—the name of the survey respondent chosen at random to win an Extron VTG 200 Video Test Generator…the winner is **Scott Miller** with **Industrial Audio/Video, Inc.** in Houston, TX. Congratulations, Scott!

by Jeff Gibson, Vice President of Sales

Extron's Investment in Our Team Members

Extron's investment in sales and technical support is as important to us as it is to you. Extron provides valuable industry information through a number of resources. One of the most critical resources is our sales and technical support staff.

Extron Customer Support Representatives provide service and technical assistance to support your projects. Available 24/7 for around-the-clock troubleshooting support, they can help you select the appropriate products for a specific application, work with you to design complete systems, and offer you detailed CAD drawings of system applications. Extron team members acquire their A/V understanding through Extron's investment in employee education.

It all begins with the core of Extron: our corporate philosophy of "Service, Support, and Solutions—S3." Members of the Extron team undergo in-depth training to help them deliver the level of customer service you expect from Extron.

At Extron, we firmly believe that knowledge is vital in the A/V industry. This is why we provide comprehensive training to our team members.

Investment in our support teams begins with an intensive internal training program comprised of presentations, discussions, and hands-on exercises. Specialized Extron staff members run our internal training program, so each sales and technical support representative gains the necessary depth of knowledge to provide you with the information you need when you call the Extron customer service phone number (800.633.9876 in the USA, +800.EXTRON.S3 in Europe, and +65.383.4400 in Asia). Extron customer support employees are trained to understand a wide range of A/V subjects, from technical concepts to practical system design.

The internal Extron training program is only the beginning of Extron's commitment to our employees. Extron team members frequently participate in ongoing education and training to keep them up to speed with the latest technologies and product innovations. Additional A/V training involves ICIA (International Communications Industries Association) certification programs.

Extron is the first ICIA member manufacturing company to be awarded the prestigious Certified Member status. ICIA Member companies qualify for Certified Member status if 50 percent of their sales or technical staff, or 20 employees achieve the ICIA Certified Technology Specialist designation, the ICIA Certified Audio Visual Sales Professional designation, or one of ICIA's more advanced certifications. At the time the award was given, Extron had over 25 employees that met the certification requirement.

For more information about the Certified Member Award program, visit ICIA's Web site at www.icia.org/education.

by Steve Somers, Vice President of Engineering

Deciphering Cable Safety Ratings and Applications

Have you ever found yourself confused or unsure of the type of wire or cable to use in a project as it relates to local codes and safety requirements? What do the various cable safety ratings mean? What materials and characteristics make one cable less flammable than another? What is meant by halogen-free cable? Is plenum cable cheaper to run than cable in conduit? I'm going to try to answer these and hopefully many other questions about cable fire safety and application.

The building authorities (usually county or city) in your locality adopt standards and codes to which construction must conform for the overall good and safety of the community. Remember that regardless of national codes and standards, the local building authorities have the last word on what is considered acceptable building and wiring practice in your area.

For both high voltage and low voltage electrical wiring, all building authorities adopt standards from the National Electrical Code, or NEC. The NEC is a collection of requirements for electrical wiring and appliances that safeguard against electrical fire and electrocution. A committee under the supervision of the National Fire Protection Association, NFPA, creates the NEC. The NEC is but one code document among many created by the NFPA. Go to www.nfpa.org for more information. I think it's important to bring up the difference between a standard and a code. A standard is a level of performance that may be adopted as an option, but a code is a mandate imposed by some authority.

"I'll take CABLES for 50, please."

All signal cable used for computer networks, telephone, video, audio, and control applications of less than 50 volts is considered low voltage cabling. Low voltage cabling is categorized into the following five basic groups within the National Electrical Code (NEC):

Cable Type:	Use:
CM	Communications
CL2, CL3	Class 2, Class 3 remote-control, signaling, and power-limited cables
FPL	Power-limited fire protective signaling cables
MP	Multipurpose cable
PLTC	Power-limited tray cable

Fire safety ratings under the NEC are conducted according to a common group of flame retardancy tests, which makes the cable markings similar across all of these designations. The NEC's cable substitution hierarchy for fire safety is shown in **Table 1**. Video, audio, and low voltage control cables fall into Class 2 typically due to the available power limits set in the NEC. All computer network and telecommunications cabling falls into the CM class. CM and CL2 categories of cabling are of primary concern in the A/V industry.

So, What's All This Cable Safety Rating Stuff Anyhow?

So, what does all the safety alphabet soup mean? **Table 2** (on following page) is a handy applications table that will help you organize the cable marking designations mentally.

Plenum-rated cables (suffix "P") are at the top of the cable safety food chain because they are constructed of materials having very low "fire load." Fire load is the term used to describe how much fuel a given material provides a fire. A lower fire load rating means that the material is more fire resistant and produces less smoke, which accounts for most fire-related deaths. Cables obtain the plenum rating upon successfully passing UL 910, Test for Flame-Propagation and Smoke-Density Values for Electrical and Optical-Fiber Cables Used in Spaces Transporting Environmental Air. Plenum is a commonly used term today in the construction and system installation industries because, in most cases, plenum-rated cables may be installed in air handling systems (air plenums) without expensive metallic conduit. Plenum cable can cut installation costs dramatically.

Riser (suffix "R") describes cables having a lesser degree of flame retardancy than plenum, but may be used to convey signals vertically in shafts without requirement for metallic conduit. The compliant cable has a flame propagation of less than 12 feet and has a temperature of 850 degrees Fahrenheit or less at a height of 12 feet per UL 1666.

General-purpose (no suffix) cables may be used in conduit, behind walls, or other enclosed locations where the cable is protected and not in an air plenum. Commercial installations, at a minimum, must use general-purpose cables (the typical CL2 designation for coaxial video cables, for example). This type of cable must comply with UL 1581, the Vertical-Tray Flame Test. For CSA (Canadian Standards Association), the vertical flame test differs in loading (more cable in bundles), burner angle, and failure criterion.

CL2X and CL3X are the lowest rated cable and must comply with UL VW-1 Vertical-Specimen Flame Test. The cable is not marked VW-1. This rating may be used in residential dwellings.

PLTC (power-limited tray cable) complies with a 70,000 BTU/hr vertical-tray flame test. Cables of this type are marked PLTC with ink or marker tape.

Getting 'P' On Your Cable

What makes a cable into a plenum rated cable? The materials making up the

continued on next page

National Electrical Code (NEC) Cable Substitution Hierarchy

Cable Type	Permitted Substitution																				
	MPP	CMP	CL3P	CL2P	FPLP	MPR	CMR	CL3R	CL2R	FPLR	MPG	MP	CMG	CM	PLTC	CL3	CL2	FPL	CMX	CL3X	CL2X
MPP	•																				
CMP	•	•																			
CL3P	•	•	•		•																
CL2P	•	•	•	•	•																
FPLP	•	•	•		•																
MPR	•	•				•	•														
CMR	•	•				•	•														
CL3R	•	•	•		•	•	•	•		•											
CL2R	•	•	•	•	•	•	•	•	•	•											
FPLR	•	•	•		•	•	•	•		•											
MPG	•					•					•										
MP	•					•						•									
CMG	•	•				•	•				•	•	•								
CM	•	•				•	•				•	•		•							
PLTC															•						
CL3	•	•	•		•	•	•	•		•	•	•	•	•	•	•		•			
CL2	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			
FPL	•	•	•		•	•	•	•		•	•	•	•	•	•	•		•			
CMX	•	•				•	•				•	•	•	•					•		
CL3X	•	•	•		•	•	•	•		•	•	•	•	•	•	•		•	•	•	
CL2X	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

Plenum Types
Riser Types
General Purpose Types
Dwelling Types

Table 1. National Electrical Code (NEC) Cable Substitution Hierarchy for Fire Safety

Cable Marking Designation

Application	Cable Family					
	MP	CM	CL2	CL3	FPL	PLTC
Plenum	MPP	CMP	CL2P	CL3P	FPLP	–
Riser	MPR	CMR	CL2R	CL3R	FPLR	–
General Purpose	MP, MPG	CM, CMG	CL2	CL3	FPL	PLTC
Dwelling	–	CMX	CL2X	CL3X	–	–

Table 2. Cable Marking Designations for NEC Application Categories

insulation on the wires and jacket on the cable must be capable of withstanding a specified amount of heat for a specified amount of time without combustion or contributing significantly to the sustenance of a fire. The ideal cable will not burn at all.

The most common insulation and jacketing material used on wire and cable is Polyvinyl Chloride, PVC. PVC has many attributes that make it a great material for general-purpose wire. Unfortunately, PVC is very flammable. When PVC burns, a key byproduct is hydrochloric acid. The smoke and residues are very corrosive. While there are several versions of PVC with varying characteristics, none are able to pass the plenum test. Some versions of PVC and another group of polymers from the family of plastics called Polyolefin may attain plenum capability when combined with certain other polymers that are more fire resistant. However, maintaining the safety margins against the plenum flame test is sometimes difficult. Construction must be highly controlled and, in some instances, cable designs that pass the test one time may not pass on another trial.

The best insulation for fire resistance to date is also one of the best dielectric materials for lower loss cables…Teflon® FEP (fluorinated ethylene propylene). Teflon FEP is a registered trademark of DuPont. But, Teflon FEP is much more expensive to manufacture which explains the higher cost of plenum rated cables. The material is tougher and more difficult to extrude. This is why plenum cables are not as flexible as PVC.

To obtain a plenum rating, the cable must pass the Steiner Tunnel Test within UL 910. The Steiner Tunnel is a specially constructed fire chamber that positions a group of cables of the same type and about 24 feet in length into a horizontal frame within an air handling plenum. Air rushes into one end of the plenum. Gas burners supply a specific level flame under the cable bundle about 4.5 feet from the end near the air inlet. While the flame is applied for a specified period of time, the length of flame travel along the cable is monitored as well as the amount of smoke produced. At the opposite end of the tunnel, a vent shaft funnels the air and smoke past photoelectric sensors. Criteria under which the test results must comply are:

- Smoke Peak Optical Density: less than 0.50
- Smoke Average Optical Density: less than 0.15
- Maximum Flame Propagation: less than 5.0 feet from point of application

The Secret Ingredient

Most all of the wire and cable insulation made in the US depends on the addition of halogens for fire retardancy. What are halogens? Halogens are the elements in group VIIa on the periodic chart (yes, you will now use some of that obscure high school chemistry). The name is of Greek origin, meaning "salt-bearing." The naturally occurring halogens are fluorine (F), chlorine (Cl), bromine (Br), and iodine (I). Halogens are nonmetallic and closely resemble one another. They readily form bonds among themselves and with most other elements.

While PVC contains chlorine, it is not fire resistant. PVC and polyolefin products must have concoctions of other elements added in order to achieve any degree of flame resistance. Most fire resistant compounds contain fluorine or are said to be fluorinated, such as FEP (fluorinated ethylene propylene).

I Can't Believe It's Not Halogenated!

European building authorities will not allow use of halogenated cables. When halogen-based cables burn (at whatever level they will produce smoke), the smoke is corrosive and contains poisonous gases. There is high concern about the true safety of halogen-based cables. More information on the move away from halogens in cable insulation may be obtained at: www.halogenfree.org.

While the European Union designs the safety tests for that region, there is great debate over the relevance of their position on cable flame retardancy and safety versus that in the US. All cabling sold in Europe must be halogen-free. Halogen-free polymers require other formulations of compounds in order to obtain low smoke cable products.

Ratings? We Don't Need No #@&% Ratings!

The cable rating to use on a project is, first and foremost, dictated by the local building authorities. Always check on your local codes before committing to the design. Generally speaking (for the US), general-purpose cable, like CL2, is acceptable in enclosed raceways and protected regions not used as air plenums. Cables run between floors in air spaces must be riser grade minimum or else run within metal conduit. Cables run in horizontal air plenums must be plenum-rated, or run in metal conduit.

"We're The Company Without a Blimp"

Underwriters Laboratories has become something of an icon always associated with US product safety. William Henry Merrill chartered Underwriters Laboratories, Inc. in Illinois in 1901. He set up a small lab in Chicago to test electrical devices. Over the past 100 years, UL has tested more than 12,500 different types of products and employs 5,000 people worldwide. UL is a very successful not-for-profit testing organization totally supported by fees charged to clients. UL is very independent and, certainly, the most widely recognized mark in the US and in more than 70 countries.

But, UL is not the only acknowledged safety-testing authority. There are several others with equal credibility. Next to UL in the US is ETL Testing Labs. Somewhat like B.F. Goodrich, the tire company that advertised in the 60's and 70's: "we're the other company without a blimp." ETL is an internationally recognized, fully independent testing company. The ETL mark is widely recognized as equivalent to UL. All test methods and standards used by either organization are identical. Many people are not familiar with ETL, I believe, because they attained recognition as a Nationally Recognized Testing Laboratory (NRTL) in 1989…relatively recent compared to UL.

Other testing laboratories such as TUV and Dash, Strauss, and Goodhue, Inc. are well known as testing authorities. TUV began in Europe and its services have been available in the US for many years. Recently, Inchcape Inspection and Testing Services, a US corporation, absorbed ETL Testing Laboratories and Dash, Strauss, and Goodhue. However, the ETL mark survives this acquisition.

Trends in Changing Standards

The NFPA 262 (UL 910) standard is undergoing changes. Several adjustments to the procedures and calibration of the Steiner Tunnel are anticipated to affect the qualification of some plenum cables. As more and more computer network installations take advantage of plenum communications cables in air spaces above ceilings, there is new concern by fire safety officials that, over time, the buildup of old, unused plenum cables (primarily this affects the plethora of CAT 5 type communications cable) left behind as systems change is creating additional fire load that could be cause for concern. We are likely to see NFPA 262 change in this area.

In the UK, a Steiner Tunnel is being installed to allow investigations of US testing methods with fluorinated polymers compared to the European position against halogenated cables. Eventual harmonization between the US and Europe could show that our flame test is more stringent and that halogen cables are not a bad approach as long as emissions are very low. Only time and a lot of testing will tell.

Cheap At Any Price?

There is definitely a cost reason for using plenum cable in commercial installations. I don't have specific numbers on the comparison and it would vary widely due to local building codes and labor rates. The popularity of plenum-rated cable pretty well tells the story. If you have not used plenum on a job, then talk to those that have to get real numbers for your area and situation. I can say that the incremental cost of plenum is only a fraction of the cost of labor to run standard cable within metallic conduit. However, one hidden concern might be the cost to clients for the removal of old cables should code authorities require the removal of old plenum cables with system design changes. And yet, the current pace of business change essentially requires that system designs be easier and faster to install.

Dillon Productions Wows TBS with SGS

Whether you're a sports fan or a news hound, the one name that is synonymous with Atlanta, Georgia, is Ted Turner. From CNN headquarters to Turner Field, the Turner media empire is a hallmark of the city.

Staging a professional audio/visual event for such a visible organization comes with high expectations. This past holiday season, Atlanta-based pro A/V firm Dillon Production Services, Inc. (DPSI) put on a top-notch show for the folks at Turner Broadcasting System. DPSI was contracted by Universal Video Production to set up and run the A/V display for the Turner Holiday Party. To stage an event that would meet the expectations of this major media mogul, Dillon Productions used the Extron SGS 408 seamless graphics switcher as the core of the system design.

The SGS 408 is an eight input, high-resolution RGB and component video matrix switcher that performs seamless cuts, dissolves, wipes, and titles. This switcher with built-in scaler creates digital, high-quality transition effects when switching between multiple sources to a common projector.

When the opportunity came up to do the Turner party, the staff at Dillon Productions knew the SGS 408 was the best piece of equipment for the job. "We had used the SGS 408 on four shows before we were contracted to do the Turner party," says Matt Dillon, President and CEO of Dillon Productions, "and I was really impressed with how it performed."

The Main Event

The theme was "Lights, Camera, Party!!" and it took place on Sunday, December 17, at the Georgia World Congress Center in downtown Atlanta. "The main entertainment was held in Hall D," explains Dillon, who was A/V Production Coordinator of the event. Hall D covered roughly 75,000 square feet. Singers and dancers performed on a 50 ft. stage at the front of the room throughout the four-hour event. During and between live acts, video screens positioned around the room displayed a range of images. These images included movie snapshots from films owned by Turner Classic Movies, live camera shots of the audience and stage, and still shots, such as a slide of the party theme.

Extron's SGS 408 (Seamless Graphics Switcher) with optional remotes, RCP 1000 and ECP 1000

DPSI was hired to provide the audio, video, and lighting systems for the party. "We contracted the lighting to another Atlanta-based company called I&T—Imagination & Technology," says Dillon. "They set up around 40 intelligent lighting instruments and did a great job lighting the stage and the entertainers. Dillon Productions, then, focused on the audio and video components of the event."

Dillon's goal was to design an A/V system that would let each person in the hall see and hear the entertainment comfortably. He tackled the audio with a 40,000-watt system that included a 24 channel Soundcraft Console and a range of well-positioned speakers from EAW. To get the visual effects he wanted, Dillon put together a network of video equipment with three SGS 408s as the hub of the downstream end.

Seamless Switching and Special Effects

Dillon placed 13 video screens around the room. The largest of these, a 15 ft. x 20 ft. rear projection screen, was flown above the stage. The other twelve were located off-stage, positioned around the perimeter of the room. There were six screens on each side of the stage—two were 10.5 ft. x 14 ft., two were 9 ft. x 12 ft., two were 7.5 ft. x 10 ft., and the last six were smaller spandex surfaces. The off-stage screens were balanced to decrease in size the farther they were from the stage, and same-sized screens were located in mirror positions on opposite sides of the stage.

Dillon used sixteen projectors to display video images on the screens: two

Electrohome VISTAGRAPHX 5,000 lumen DLP projectors (double-stacked to illuminate the 15 ft. x 20 ft. on-stage screen), four 3,000 lumen Proxima 9320 projectors (double-stacked behind each 10.5 ft. x 14 ft. screen), and ten 2,100 lumen Proxima 9310 projectors (single-stacked behind the remaining screens).

The on-screen images came from several different sources. Two Sony digital wide-screen cameras (DXC-D35WSLs) were located in fixed positions. These cameras took live shots of the stage and audience. A third fixed camera (AJD 700 Panasonic DVC PRO) took shots of both the performers and the crowd, and a fourth hand-held camera took live shots from all around the room. Two DVD players and a beta deck supplied playback images that included the Turner Classics movie clips and still shots.

The video sources were input to three Sony switchers (one DFS 700 and two DFS 500s) to accommodate the digital format of the wide screen cameras. The outputs from the Sony switchers were then routed to one of three Extron SGS 408 seamless graphics switchers, which controlled all the switching and transition effects for the performance.

One SGS 408 was dedicated to the Electrohome DLP projectors illuminating the screen above the stage. The other two seamless graphics switchers controlled the projectors displaying images on the remaining twelve screens. Output signals from the SGS 408s were split and run to the video projectors through a series of distribution amplifiers.

A single switch operator—David Creed from Dillon Productions—controlled the video outputs from the SGS 408s. Creed used three Extron remote control panels (RCP 1000s) and one event control panel (ECP 1000) to preview the video sources and then seamlessly transition between inputs.

Above: David Creed, of DPSI, has touch-of-a-button control over video effects executed by three SGS 408s.

Left: Close-up of the SGS 408 setup

The remote control panels are designed to work with the SGS 408 and can be located up to 1,000 feet away from the switcher. These panels let Creed independently control switching and picture functions for each switcher from an operator's table instead of through the front panel.

The panels support both a program and a preview function that can be accessed through two rows of buttons: one set controls the program output—what the audience sees, and the other set controls the preview output—what the operator sees. These buttons let Creed preview and execute switches to the sixteen projectors at the touch of a finger.

The event control panel gave Creed simultaneous control over all three SGS 408s. This panel let him execute transitions across multiple screens at the same time. Creed could select one of 30 preset multi-screen transitions through a single button push, enabling simultaneous cuts, dissolves, and wipes that are timed and synchronized on multiple screens. The panel also has a special T-Bar transition controller that let Creed control the speed of transitions that were executed across single and multiple screens.

"David used a number of the different transition effects to switch between inputs," says Dillon. "For example, with the twelve screens we had set up around the room, plus the main one on the stage, David would use the left to right wipe effect. This created a smooth and professional transition between output displays all the way around the room."

Creed executed both the impromptu switches and the choreographed transitions with professionalism and ease. When the lights finally went out on the party for TBS, the SGS 408 had wowed everyone, especially the staff of DPSI. "We were so pleased with the SGS 408's performance," says Dillon, "that we just ordered our second set of three SGS 408s."

Front view of a high-capacity, multimedia classroom.

The Technological Forefront of Education

The University of Central Florida (UCF) was recently selected by Yahoo! as one of the most wired institutions of higher learning in the United States.

Last spring, UCF began their latest foray into the A/V world with a multitude of multimedia systems in mind for a new classroom building. This building was designed to integrate technology with architecture for the creation of cutting-edge educational environments: seventeen multimedia classrooms, two auditoriums, an anatomy lab, a student multimedia computer lab, two notebook PC classrooms, two distance learning rooms, and a faculty center. (This article focuses on a typical multimedia classroom system.) All systems are controlled by Crestron control systems, with a dedicated touch panel in each room. UCF's Multimedia Facilities Design and Support staff members developed the A/V systems plans, and the Orlando office of MCSi Consolidated Media Systems was responsible for the systems integration.

Classroom building with cutting-edge A/V systems at University of Central Florida.

For the podium in each classroom, two of the goals UCF had in mind were to standardize all podiums for professors and to allow input from an internal podium PC as well as a professor's laptop. Standardization would make technical maintenance easier for tech support and minimize training time and effort for faculty and support staff. Permanent connection access for two inputs ensured that professors did not need to swap out a computer to hook up their own laptops. It also gave professors the capability to instantly switch between the podium PC and a laptop.

Interfacing

UCF staff explained the choice of Extron products, "UCF has used Extron products in the past, and we are satisfied with their high bandwidth and reliability. All products with RS-232 control use Extron's SIS™ [Simple Instruction Set], so that makes programming a lot easier. We also selected Extron products for their quality, performance, and manufacturer support."

Some manufacturers' RS-232 commands are quite obscure and lengthy. For intuitive, time-saving programming, Extron offers simplified RS-232 commands to minimize programming requirements. These commands are collectively called the Simple Instruction Set. Also, every Extron product that is RS-232 controllable ships with free control software for use with Windows operating systems. This software uses a graphical user interface to make control simple and convenient.

A professor's laptop is hooked up to the A/V system through the Extron RGB 158xi computer-video interface. UCF staff discussed why the RGB 158xi was selected: "We chose this interface because it offers an electrical outlet. This outlet eliminates the expense of having an electrician install an electrical outlet in each podium. The RGB 158xi's electrical outlet and VGA input connector are perfect for a laptop. Another plus is the rack ears. They were handy for installation, when we mounted the 158xi through the podium, so there would be easy access from the professor's side of the podium."

The rack-mountable RGB 158xi is a universal, analog interface with a 15-pin HD input, buffered local monitor output, unswitched AC outlet, and optional Architectural Adapter Plates for cable pass-through connectors. Offering 300 MHz (-3dB) RGB video bandwidth, it is compatible with VGA, SVGA, XGA, SXGA, UXGA, Mac, Sun, and SGI signals. The RGB 158xi also provides Advanced Digital Sync Processing (ADSP™). ADSP compensates for the sync processing limitations of digital displays, so clear, stable images are produced.

Switching and Cabling

The Extron SW2 VGA DA2 A switches between the RGB 158xi's laptop source and the podium PC. The professor uses the room's touch panel to select the current input source. The PC monitor receives one output of the SW2 VGA DA2 A. The other output is routed to the Proxima projector using Extron BNC-5 Mini HR Cable. The Extron MAV 62 switches between the VCR, document camera, and a third source, which varies. This third source is input from one of the AAPs of the RGB 158xi. From the MAV 62, composite video output is carried to the Proxima projector. The other composite video output is sent to an interface module and then to a Crestron touch panel.

The SW2 VGA DA2 A sends its balanced audio output to the MAV 62. The MAV 62 in turn routes the selected balanced audio output to the classroom's audio system. The SW2 VGA DA2 A is a two input, two output, combination switcher and distribution amplifier. For computer-video, it switches two 15-pin HD computer-video sources to dual 15-pin HD outputs. For audio, the SW2 VGA DA2 A accepts two stereo audio sources (unbalanced) on 3.5 mm stereo jacks and outputs one stereo audio output (balanced or unbalanced) on a 3.5 mm captive screw connector. Balanced audio output is advantageous because it maintains signal quality over long cable runs, whereas unbalanced audio does not. The SW2 VGA DA2 A includes detachable brackets for under-desk mounting, and optional brackets are available for through-desk mounting.

The MAV 62 is a six input, two output, composite video and stereo audio matrix switcher. The MAV 62 sends any input to either or both outputs. This matrix switcher allows the signal routing in a UCF classroom to be easily controlled from one central location, either the intuitive front panel or the Crestron control system via RS-232 and SIS commands.

Each conductor of the SuperFlex BNC-5 Mini HR Cable is a 26 AWG, 75 ohm, coaxial conductor, color-coded and wrapped in a single jacket. Available in bulk lengths of 500 and 1,000 feet (153 and 305 meters), this cable includes an internal ripcord for easy, convenient cable stripping and sequential numbering for quick measurement of cable length. The BNC-5 Mini HR Cable is also available in pre-cut lengths.

The professor's podium houses Extron's RGB 158xi computer-video interface, Extron's SW2 VGA DA2 A switcher and distribution amplifier, a permanent PC and its local monitor, a VCR, and a touch panel for control.

Looking Forward to the Future

On the educational side, UCF staff has received extremely positive feedback from faculty members, elaborating, "The new classrooms are in high demand because the systems are very reliable and easy to work with. And the standardization makes using a different classroom a snap." On the technical side, UCF will continue to use Extron products and work with Extron team members on future projects. UCF staff emphasized the cooperation requisite for this cutting-edge classroom building. "We worked with Extron to refine schematics and system designs. Extron was extremely responsive, making sure that their products met the application's needs."

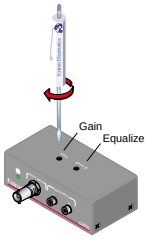
CVEQ1
Composite Video Equalizer/Line Driver

CVEQ1

CVEQ1 AAP

The Extron CVEQ1 is a one input, one buffered output, composite video and stereo audio line driver with equalization capability. It will output balanced or unbalanced stereo audio. For video, it is compatible with any NTSC, PAL, or SECAM device such as VCRs, video cameras, etc.

The CVEQ1 is designed to compensate for signal attenuation and high frequency loss encountered in long cable runs of a composite video signal. Top panel controls give users the ability to adjust peaking/equalization and gain to limit signal degradation. The CVEQ1 can maintain composite video signal quality over cable runs of 1,000 feet (305 meters) or more of Extron Super High Resolution coaxial cable.



On the front panel of the CVEQ1, a green LED indicates power. Composite video is input and output on female BNCs for 75 ohm video impedance levels. Unbalanced stereo audio is input to the front panel on two RCA stereo audio jacks and output as stereo audio (balanced/unbalanced) through the rear panel on captive screw connectors to enable maximum performance, flexibility, and ease of installation. The USA/domestic version of the CVEQ1 includes a 110VAC, external power supply, while the world version includes a 110-240VAC, external power supply. The CVEQ1 is available as an Architectural Adapter Plate (AAP). The AAP version is available in three colors: grey, black, and white.

CVEQ1

CVEQ1 (USA/domestic)
Part Number: 60-360-01
List Price: $325.00* (US Dollars)

CVEQ1 (World)
Part Number: 60-360-02
List Price: $380.00* (US Dollars)

CVEQ1 AAP
Part Number: 70-146-XX

List Prices:
Grey AAP: $290.00* (US Dollars)
Black AAP: $295.00* (US Dollars)
White AAP: $295.00* (US Dollars)

URL:
www.extron.com/cveq1

* Prices valid for US sales only.

P/S 100
Universal Power Supply

The Extron P/S 100 is a universal, rack-mountable, 12V DC, 2.0 amp power supply. It is designed to power up to ten Extron Architectural Series interfaces or distribution amplifiers.

The P/S 100 provides ten separate 12V DC, 200 mA-rated outputs using two banks of ten, 3.5 mm captive screw connectors. It includes an internal, 100-240V AC, 50/60 Hz, auto-switchable power supply. On the front panel of the P/S 100, a green LED indicates power is on. On the back panel, a two-color LED is illuminated green when power is applied. This LED becomes red to indicate over-current (2.0 amps or more). For each individual output, a series of 10 red LEDs indicates current draw greater than 1.0 amp.

The rack shelf-mountable P/S 100 is housed in a quarter rack, 1U high, vented metal enclosure.

P/S 100

Part Number: 60-357-01
List Price: $450.00* (US Dollars)

URL:
www.extron.com/ps100

* Prices valid for US sales only.

S-video and Component Video MAV Matrix Switchers

MAV 1616 S-Video & Audio

MAV 1616 Component Video & Audio

We've added eight new models to our existing 300-plus matrix models. These new switchers build on our existing MAV Series of composite video/stereo audio matrix switchers. The new models include four S-video matrix switchers and four component video matrix switchers. All new models are available with and without unbalanced/balanced stereo audio.

Both the S-video and component video matrix switchers come in two different sizes: 16 inputs and 16 outputs (16 x 16) or 16 inputs and eight outputs (16 x 8). Each size can be configured for video and/or audio.

These new switchers are off-the-shelf ready and immediately available for the most time-sensitive installations. Each model ships with our simple-to-operate front panel. The front panel incorporates Extron's field-tested matrix switcher design, which was developed to eliminate the learning curve associated with using a matrix switcher. Input and output selections are easily controlled with the touch of a button through Extron's QuickSwitch Front Panel Controller (QS-FPC™) technology. To simplify operation, the input/output buttons can be easily labeled using Extron's label software, which ships with every Extron matrix switcher. These buttons can also be labeled using any Brother P-Touch labeler.

These new switchers feature Extron's trademarked Simple Instruction Set (SIS™) for RS-232/422 control. SIS is a set of ASCII commands that makes RS-232 control easy and intuitive. These switchers also ship with Extron's Windows-based control software, which enables simple, intuitive input/output configuration and other types of customization. This control software features an emulation mode that lets the matrix switcher be pre-configured on a PC before the switcher is actually installed. Using the emulation mode to program the switcher makes the programming process very simple and reduces overall installation time.

Like the other switchers in the MAV series, these new S-video and component video versions provide flawless switching and distribution of signals without signal degradation. Both versions offer a minimum 150 MHz (-3dB) video bandwidth. This rating is a worst-case specification. In other words, these switchers provide at least 150 MHz (-3dB) at full performance capacity—when one input signal drives all outputs. In most other applications, video bandwidth generally exceeds 150 MHz (-3dB).

The audio versions support balanced and unbalanced stereo audio. The switchers with audio also support audio breakaway, which lets an audio signal be detached from its video signal and routed independently from the video source. With all Extron Matrix audio versions the adjustable audio attenuation/gain feature allows installers to set the audio input levels from –15dB to +9dB through the front panel or RS-232/422. Individual input audio levels may be adjusted so there are no noticeable volume differences between sources.

These switchers feature industry-leading technology such as video genlock and vertical interval switching, enabling seamless transitions between inputs. Each model offers 16 global presets and comes with an internal international power supply. Both models are rack mountable in conventional 19" wide racks—the S-video series is 3U high, and the component video series is 4U high. Additionally, both series can be controlled remotely using Extron's master control panel (MCP 1000) and remote keypad (MKP 1000).

MAV Matrix Switchers

Eight versions available. Please call Extron for part numbers and prices.

URLs:
www.extron.com/svideomav
www.extron.com/componentvideomav

35 foot Pre-cut Cable Lengths

BNC-5 RC

For more flexibility in system designs, several of Extron's pre-cut, coaxial cables are now available in 35 foot lengths:

Super High Resolution Cable—This is our highest resolution, lowest loss cable. It is ideal for long-distance cable runs because it handles high and low resolution video and sync signals without loss of sharpness or brightness. This cable is terminated with 75 ohm BNCs and housed in a flexible jacket, which makes it easy to pull in any installation.

Mini High Resolution Cable— This is a lighter cable that is smaller in diameter and easier to handle than Super High Resolution cable, while still offering excellent video performance for carrying high-resolution signals. This cable is comprised of four or five individual mini coax cables, each terminated with a 75 ohm BNC. Each cable is color-coded and wrapped in its own jacket. The entire cable is housed in a flexible jacket, which makes it easy to pull in any installation.

BNC-5 RC—This cable is ideal for rental and staging applications, which require cabling with excellent performance, resiliency, and flexibility. It has five, 75 ohm, color-coded coax conductors that are larger than standard conductors to increase pull strength and reduce the likelihood of cable damage.

15-pin HD Staging Cable (VGA, SVGA, XGA, SXGA)—This cable is designed for use in staging events where the A/V components use 15-pin HD connectors. It's ideal for applications that do not require ID bits to be passed to the projector or monitor. The cable uses five mini high resolution conductors and is available in male to male and male to female versions.

Plenum 15-pin HD Install Cable (VGA, SVGA, XGA, SXGA)—This cable is designed for use in installations where the A/V components utilize 15-pin HD connectors. It's ideal for applications that do not require ID bits to be passed to the projector or monitor. This cable uses five mini high resolution conductors and is rated for use in plenum environments. Male to male and male to female versions are available.

15-pin HD Install Kits—These kits include a SuperFlex, five conductor mini high resolution cable with a 15-pin HD male connector at one end. The other end has no connector attached to make cable runs easier to pull. The kit comes with either five BNCs or two 15-pin HD connectors (one male, one female) to attach once the cable run is complete. Available in plenum and non-plenum versions.

35 foot Pre-cut Cable Lengths

Please call Extron for part numbers and prices.

URL:
www.extron.com/cables

Plenum S-Video Cables

Plenum S-Video Cables in Pre-Cut Lengths—Extron's Plenum S-video Cable is now available in pre-cut lengths. It can be purchased in lengths of 6, 12, 20, 30, 50, 75, and 100 feet. The original bulk lengths of 250 feet and 500 feet spools are still available.

For S-video applications, Extron's Plenum Two Conductor S-video Cable passes Luminance (Y) and Chrominance (C) information on mini high resolution, coaxial cables. This cable maintains signal integrity, even during long cable runs between sources and destinations. The S-video Cable is comprised of two, 26 AWG, 75 ohm conductors, each individually shielded and encased in a sheath to reduce interference.

Plenum S-video Cables

Description	Part Number
Plenum S-video 6'	26-522-01
Plenum S-video 12'	26-522-02
Plenum S-video 20'	26-522-03
Plenum S-video 30'	26-522-04
Plenum S-video 50'	26-522-05
Plenum S-video 75'	26-522-06
Plenum S-video 100'	26-522-07

Please call Extron for pricing.

URL:
www.extron.com/plenumsvideocables

Part 2: Lights, MVP, Action! Displaying Multiple Images for Videoconferencing

In the last issue of ExtroNews, this Videoconferencing column described how to set up a scan converter to display the best computer image possible. Now let's add a few more components to the equation.

During a videoconference session, you may want to include multiple video sources to enhance the presentation—for example, application drawings using a document camera, video clips on a VCR, a camera shot of the person speaking, and a close-up of a product. The question is: how can all those sources be displayed simultaneously to the far-end participants?

There are two issues at work here. The first is identifying what piece of equipment can handle displaying multiple images from separate sources, and the second is determining how to provide adequate lighting so those multiple images are clearly visible at the far end.

Multiple Image Solution

Finding the right piece of equipment is pretty simple. Extron's solution is the MVP 104GX. The MVP 104GX can display up to four NTSC or PAL video signals on a single screen at the same time. Images can be routed from sources like VCRs, DVD players, document cameras, and codec cameras, with the option to output a stereo audio signal associated with any video input.

Front panel adjustments on the MVP 104GX allow each video window to be independently scaled, positioned, or overlapped. These features let users prioritize images through different window configurations, like picture in picture (PIP) or quad splitting. Multiple image windows can enhance the communication process for the far-end participants by emphasizing the window that is the focus of the conversation.

Shed Some Light

Now that we've explored one solution for displaying multiple images, let's tackle that lighting issue. If you can design the entire layout of a videoconferencing room from the start, you're in luck. There are plenty of consultants who can lend a hand selecting optimal lighting for a videoconference room. But the reality is many videoconferences are staged in locations that were designed for a completely different purpose. That means you're working with pre-existing light, which often translates into overhead two-by-four fluorescents. Most videoconference cameras work best with a color temperature of 3500K. Standard fluorescent lighting is 4100K. Therefore, to display multiple images effectively, some lighting issues will have to be addressed.

First, let's talk about the way people's features appear on the far-end of a codec camera. With overhead fluorescent lighting, most people will appear to have the "raccoon eye" syndrome (dark circles), or they may have harsh shadows below their chins, which make them look like they have no necks. Also, mixing light sources from windows, incandescent lights, and fluorescents can result in poor image quality on the receiving end of a videoconference.

Replacing the direct overhead light fixtures with ones that are angled at 45 degrees will help eliminate harsh shadows. Also, select a table with a pale-colored top for the room. The angled light bouncing off this surface will brighten those faces. Adding a backlight, or "wall-wash," is another way to improve the quality of images in a videoconference. This enhances the depth of objects, giving a more 3-D effect to a flat video look.

Today, most document cameras come with a light to make the document clearly legible to the far-end participants. If you're working with an older model that doesn't have a light, place a small, bright desk lamp near the document camera, but make sure that it is illuminating the document evenly.

Even after adjustments to the lighting have been made, multiple images that are displayed side-by-side may still appear to have differences in color or brightness. Performance variations between individual pieces of equipment may cause these differences.

The solution to this problem would be having the ability to control color, tint, contrast, and brightness for every image source. Extron's MVP 104GX lets users adjust each multi-video image independently and in comparison to other simultaneous outputs. Users can adjust and save the settings for color and tint, as well as brightness and contrast through front-panel control knobs. These adjustments help generate the optimal images for every videoconferencing application.

Stay tuned as more tips and solutions for videoconferencing environments are discussed in the next issue of ExtroNews.

For help with videoconferencing system installation and use, please call Extron for assistance at: 800.633.9876.

For optimal images in videoconferencing, the MVP 104GX lets users adjust each multi-video image independently and in comparison to other simultaneous outputs.

by Roger McCarten, Product Development Manager

Using the System 7SC for Room Control

Extron recently introduced the System 7SC switcher. The System 7SC can be thought of as an all-in-one switching and control solution for conference rooms, classrooms, meeting rooms—any small to medium-sized application where the budget is limited.

The System 7SC provides switching, projector control, and room control: everything needed for a single room application. Room control is a feature of the System 7SC that allows equipment such as a projector lift, screen mechanism (to raise/lower a screen), lights, or other electrical devices to be controlled by the System 7SC. The user can control these devices directly from the System 7SC, or remotely with an IR remote, or from SCP control pads located throughout a room.

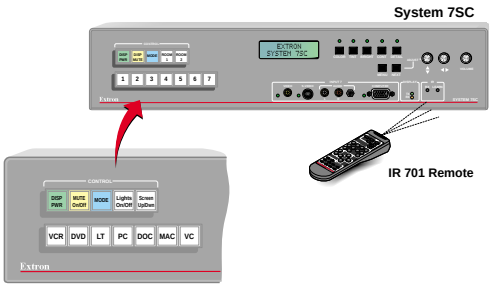


Figure 2. Functions on the System 7SC can be controlled by an IR remote.

Control Relays

To control external room devices the System 7SC uses two built-in relays. These relays in turn operate third party control devices which actually control the room equipment. Each relay can be operated independently. The relays open and close, or make momentary contact (depending on how they're set up) as the room control button is pressed. The two relays each have two sets of contacts, one normally open, and one normally closed. Therefore, two devices can each have up to four actions associated with them—for instance, on/off and up/down. For example, the two contacts (on one relay) could be used to lower the projector and turn off room lights. **Figure 1** shows a schematic of the relays used on the System 7SC.

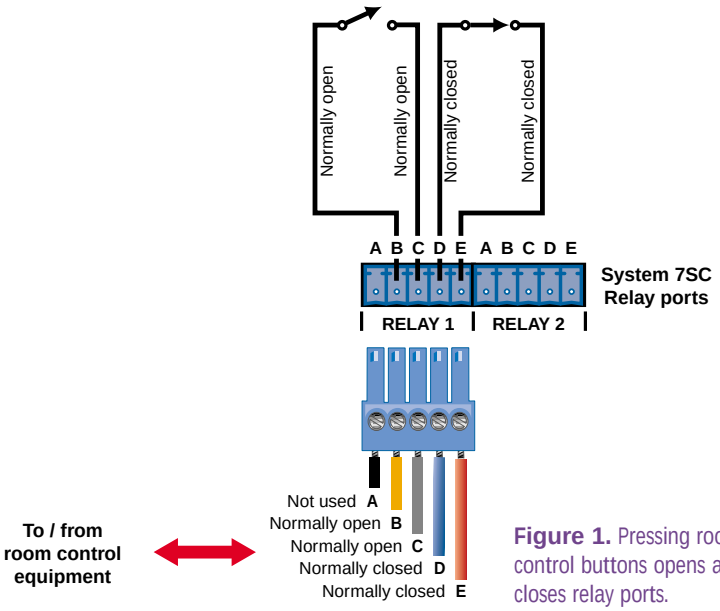


Figure 1. Pressing room control buttons opens and closes relay ports.

Each contact is capable of handling 24 volts and up to one amp. The action of relay contacts on the System 7SC can be changed, depending on the requirements of the third party control device, to operate in one of two ways:

1. **Latching**— The relay changes position when the button is pressed and remains in that position until the button is pressed again.
2. **Momentary**— When the button is pressed the relay changes position (makes contact) for a short period. This period is adjustable.

Once the relay operation is programmed, the relays can be used to control external devices. As mentioned above, third party controllers can be connected to the relay contacts to allow remote control.

Room control through the System 7SC

Once room control devices have been connected to the relays on the System 7SC, the user has a choice of several ways to control equipment in the room. The most obvious method is to use the front panel on the System 7SC, but this may not be convenient. As an alternative, an IR remote control (which is supplied with the switcher) can be used to control switcher functions, the projector, and room devices. **Figure 2** shows the front panel of the System 7SC and the dedicated room control buttons.

Another option is to use one of Extron's SCP control pads. These can be installed anywhere in the room (such as desktops or walls) and allow the user to control the projector, switching, and room functions. **Figure 3** shows the SCP 250 control pad.

The SCP control pads can be obtained in either wall/desk plate form (such at the SCP 250 shown above) or as an AAP plate, which can be mounted in wall plates with AAP openings. Placing the SCP control pads around a room allows room equipment, the projector, and the switcher to be conveniently controlled from various locations. **Figure 4** shows the overall system.

If a third party control system is already in place, the System 7SC can be controlled via RS-232. The relay functions can also be controlled through RS-232 This in turn allows the third party control system to control room functions.

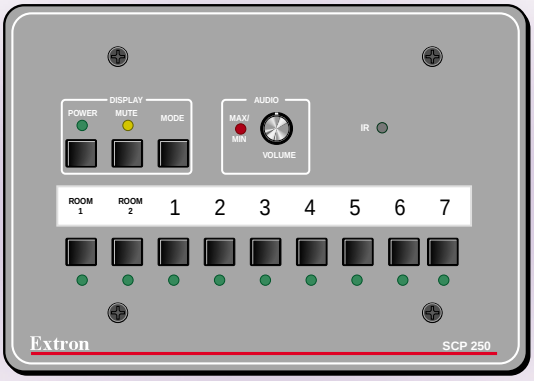
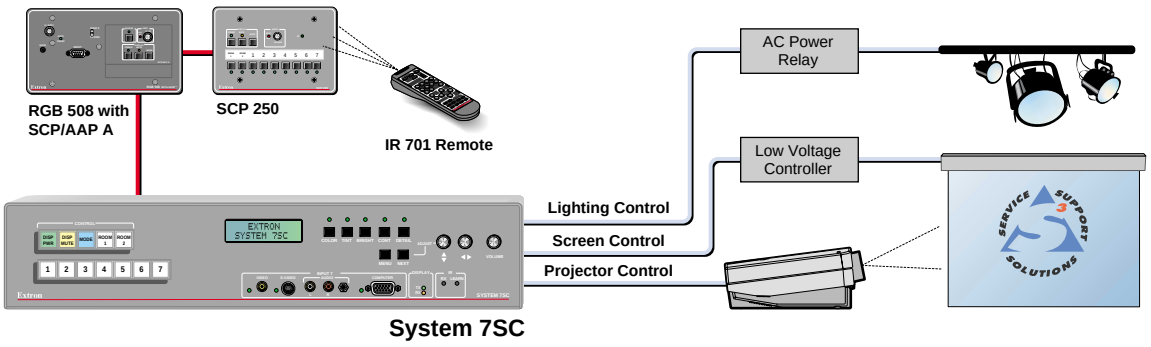


Figure 3. SCP 250 control pad

Figure 4. Complete System 7SC solution



ExtroNews publishes information about new products that are relative to the Extron product line in the New News section. Also listed are the recommended Extron products that will complement these new display devices in their targeted applications. If you would like a new product to be reviewed for New News, please send a press release, literature, contact name, and a four-color slide or photo to: **New News c/o Ginger Dodier, Extron Electronics, 1230 South Lewis Street, Anaheim, CA 92805, phone: (714) 491-1500, ext. 6270 or e-mail to gdodier@extron.com**

BARCO Projection Systems, Inc.
www.barco.com

Barco has introduced the first in the new family of Light Machine projectors, the BARCO **SLM G5** "Performer." Rental and staging applications as well as preview theaters in digital cinema complexes are ideal environments for the Performer. The XGA (1024 x 768) Performer utilizes DLP technology and offers a light output of 5,000 ANSI lumens. "Linked" Constant Light Output (CLO) allows projectors in multiple screen set-ups to communicate with one another and modulate their light output. The SLM G5 also offers Picture-In-Picture capability, and it is compatible with composite, S-video, RGB, component, HDTV, SDI, and PanelLink. The suggested USD list price is $49,995.

Recommended Extron product:
For rental and staging applications, adding the **SGS 408** seamless graphics switcher to the Performer will complete the show. The seamless cuts, dissolves, wipe, and titles of the SGS 408 bring professionalism and style to to live presentations. The SGS 408 incorporates two video scalers plus a digital video mixer and can manage component as well as any type of RGB input from video sources up to 1600 x 1200 resolutions. For remote switching an RCP 1000 (Remote Control Panel) is required, and to control multiple screens, additional SGS 408s and an ECP 1000 (Event Control Panel) controller can be added.

SLM G5

Clarity Visual Systems
www.clarityvisual.com

Clarity Visual has extended their Tigress line with the **TigressII** SVGA rear screen projection display. One of the applications this 52" DLP display is designed and manufactured for is the command and control room, where access to data by large groups of viewers is critical to the operation. The TigressII display will be available with Clarity's full complement of screen technologies, including the Wide-View or High-Contrast black glass screen or the new High-Gain acrylic UCS screen. The USD list price is $14,185 with the black glass screen or $13,345 with the acrylic UCS screen.

Recommended Extron products:
The **CrossPoint** and **CrossPoint Plus** Series switchers allow multiple inputs to be routed to multiple outputs, and they are ideally suited for command and control room applications. These RGBHV CrossPoint and CrossPoint Plus switchers are also available with or without audio and are offered in the following sizes: 8 x 4, 8 x 8, 12 x 4, 12 x 8, 16 x 8, and 16 x 16. The audio versions have adjustable gain and attenuation. The Plus versions have Digital Sync Validation Processing (DSVP™) which allows remote diagnostics of the CrossPoint Plus switchers.

TigressII

Fujitsu
www.plasmavision.com

Fujitsu announced its Plasmavision SlimScreen **PDS 422** plasma display monitor. The depth of this flat-panel display is less than 3.5". Applications for this 42-inch widescreen (16:9) display include high-end home theaters and many other consumer and commercial applications. The 1024 x 1024 resolution pixel array can display images at 1080i and 720p HDTV resolutions, as well as 480i and 480p SDTV signals. In addition, the plasma displays XGA, SVGA, and VGA computer-video. USD list price for the PDS 422 is $15,999.

Recommended Extron products:
For switching and distribution of HDTV and computer signals to the PDS 422, Extron offers a selection of switchers and distribution amplifiers (DAs). For HDTV applications, the **SW 6 Component** switcher allows multiple HDTV images to be switched to one monitor, and the **ADA 6 Component** distribution amplifier allows one HDTV image to be displayed on multiple monitors. For computer applications, the **SW VGA** switchers and **P/2 DA** distribution amplifiers can be used. The SW VGA series are 2, 4, or 6 input switchers with 15-pin HD connectors. The P/2 DA 2, 4, or 6 distribution amplifiers drive the PC signal as well as distribute the PC's signal to multiple monitors.

PDS 422

InFocus
www.infocus.com

InFocus introduced the **LP925** and **LP930** fixed installation projectors to serve in a variety of presentation environments, such as auditoriums, meeting halls, large conference rooms, and the rental and staging marketplace. These projectors feature XGA resolution, LCD technology, HDTV compatibility, and digital connectivity, and they are compatible with composite, S-video, component, and RGB. The LP930 offers 3,200 lumens and incorporates MLA (microlens array) and lens shift. The LP925 offers 2,400 lumens. USD list price for the LP925 is $9,999 and $13,999 for the LP930.

Recommended Extron products:
For fixed installation environments as well as rental and staging gigs, the **System 7SC** switcher complements both of these projectors. The System 7SC is a seven input, dual output switcher with scaling capabilities and advanced film mode processing with 3:2 pulldown detection for NTSC and 2:2 film detection for PAL. Six of the seven inputs of the System 7SC accept composite video, S-video, component (including HDTV), or RGBHV, and the seventh input accepts composite video, S-video, or RGBHV. The scaled output of the System 7SC can be configured to match the LP900 series' XGA resolution. The System 7SC also offers projector and room control.

LP925 / LP930

Sanyo
www.sanyolcd.com

Sanyo announced the addition of the **PLC-XP30** to its family of multimedia LCD projectors. This projector offers 3,000 ANSI lumens, 1024 x 768 resolution, 700:1 contrast ratio, and the DVI (Digital Visual Interface) input. Other signal inputs include composite video, S-video, component, and RGB. In addition, using the power lens shift feature, the units can be twin stacked. List price is $12,995 (USD).

Recommended Extron products:
When using the DVI input of the PLC-XP30, the **DDTX/DDRX DVI** driver will lengthen the distance run, and the **D/2 DA4 DVI** distribution amplifier will multiply the output of the PC's DVI graphics card. Since the DVI signal is recommended for runs up to 15 feet (4.6 m), the DDTX/DDRX DVI driver allows the signal of the DVI card to be driven up to 330 feet (100.5 m) using Extron's SHR cable. If multiple projectors are needed, the D/2 DA4 DVI distribution amplifier splits the signal of the DVI graphics card to four outputs.

PLC-XP30

ViewSonic
www.viewsonic.com

ViewSonic unveiled its LiteBird series of projectors. Included in this series is the light and portable **LiteBird PJ1075** weighing only five pounds and offering 1200 lumens. This DLP projector has XGA resolution with compressed SXGA. Picture-in-Picture capability allows video and computer data to be viewed simultaneously. The inputs of the PJ1075 include composite, S-video, and RGB. The USD list price is $4,995.

Recommended Extron products:
For portable applications using the LiteBird series, the **P/2 DA1**, also known as "The Peaker," is the ideal product to ensure a high quality presentation. The P/2 DA1 peaks or drives the video output of the laptop or PC. It also restores the low level sync found on many laptops and compensates for long cable runs and poor quality cable. The P/2 DA1 is available in 110VAC, 110-240VAC, or USB version. The USB version obtains its power from the USB port on the laptop or PC. "The Peaker" or P/2 DA1 gives added confidence to the presenter on the go.

LiteBird PJ1075

Extron's New Web Site:
New Level of Support, New Functionality, New Look

Extron's new home page (www.extron.com)

Extron has completely revamped www.extron.com to provide the most user-friendly access to product information and technology resources. You've given us a lot of feedback about what you wanted from our Web site, and we've responded.

New Level of Support

For each product category, if you have questions about how to choose the product that's right for your specific application, Extron offers a step-by-step selection process for you to click through. (See **Image 1.**)

For each product, the overview page immediately provides you with its part number as well as tabs for what's available: description, feature list, full specifications, application diagram, and panel drawing. (See **Image 2.**) Each panel drawing is also offered in a Flash version, for close-ups, zoom-outs, and panning using click-and-drag, so you can examine each product in as much detail as you need. And the product information is available in a print-friendly version for perfectly formatted print-outs.

Available support materials are listed at the bottom of each product overview page—from brochure to full specifications to user manual. Once you've arrived at a product's page, you have instant access to all relevant information and materials.

New Functionality

The new interface has been designed to be more efficient AND user-friendly. It operates faster, features improved navigation, and includes better search options—it's easier to find what you're looking for. From the home page or any product page, get to any product with one click of the mouse.

We've also made the Download Center more efficient to use. It offers a variety of materials to support Extron products—from control software to user manuals to full specifications. You can search for what you need using either product name or product category.

With our improved search engine, you now have three approaches for finding the product information you need:

1. **Product-based:** If you already know which product you want more information on, type in the name of the product (e.g., SGS 408).

2. **Application-based:** If you don't know which product you need, type in the name of the application you need the product for (e.g., videoconferencing).

3. **Technology-based:** If you want to know what products we offer that use a specific technology, type in the name of the technology you're interested in (e.g., CAT 5).

New Look

We've given www.extron.com a facelift. It's got a clean, streamlined look so products and resources are easy to spot.

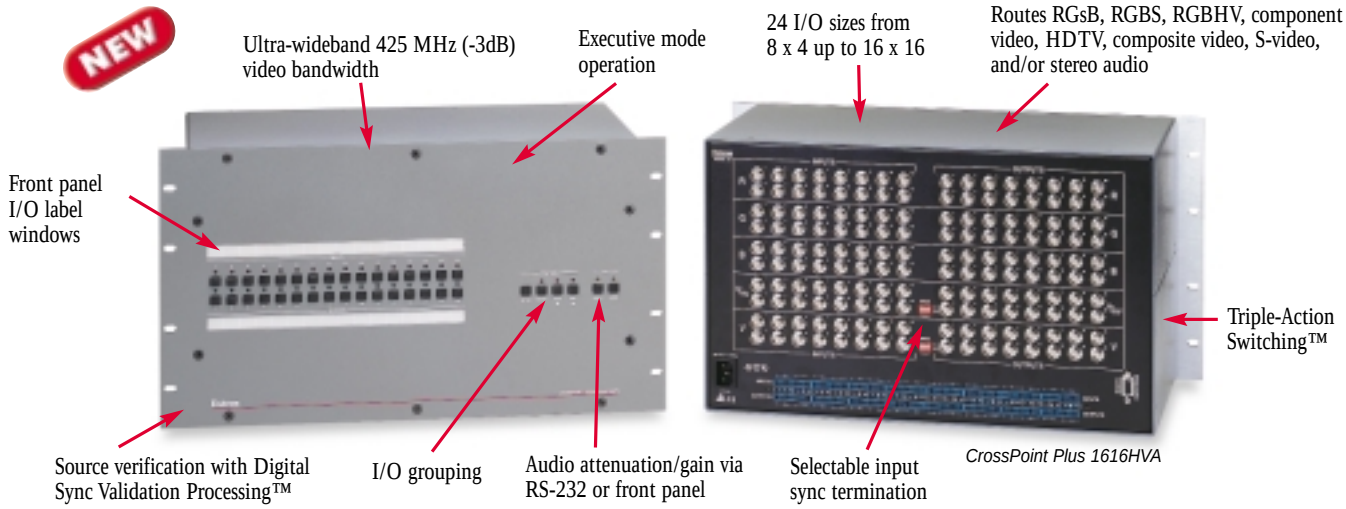
And More...

- An *applications* section details how Extron products are used to fill application needs or solve problems.
- A *tools* section provides industry-related tools for product configuration, reference information, and other useful applications.
- A *technical articles* area provides technology and application articles organized by topic.
- Dozens of links connect you to the Web sites of industry manufacturers, magazines, and professional associations.

Visit us at www.extron.com and see for yourself how it's chock-full of useful online tools!

Image 1. Extron's product category Web page offers a step-by-step selection process for you to click through.

Image 2. Extron's product Web page provides you with tabs for product description, features, specifications, application diagrams and panel drawings.


NEW
Ultra-wideband 425 MHz (-3dB) video bandwidth
Executive mode operation
24 I/O sizes from 8 x 4 up to 16 x 16
Routes RGsB, RGBS, RGBHV, component video, HDTV, composite video, S-video, and/or stereo audio
Front panel I/O label windows
Triple-Action Switching™
Source verification with Digital Sync Validation Processing™
I/O grouping
Audio attenuation/gain via RS-232 or front panel
Selectable input sync termination
CrossPoint Plus 1616HVA

Extron CrossPoint Matrix Switchers

Switching has never been easier.

Extron's newly extended family of CrossPoint Matrix Switchers now includes 16 additional models for convenient control and centralized routing of multiple signal formats including RGsB, RGBS, RGBHV, component video, HDTV, S-video, composite video, and/or stereo audio. The new CrossPoint Plus Series delivers more than twice the video bandwidth of the CrossPoint Series and includes other advanced features for even greater matrix switcher design flexibility. With 24 models to choose from, this complete line-up of CrossPoint and CrossPoint Plus single-box routers makes switching with Extron easier than ever before.

CrossPoint Series

12 models to choose from

- **NEW–** Audio gain or attenuation (-15dB to +9dB) adjustments eliminate noticeable volume differences between sources
- **NEW–** Front panel I/O button label windows for easy and intuitive I/O selection
- 200 MHz (-3dB), minimum, wideband video bandwidth, fully loaded
- View I/O mode to show which individual inputs and outputs are active
- Audio follow or breakaway routes audio and video together or separately
- Individually buffered, independent outputs
- Global memory presets
- QuickSwitch Front Panel Controller™ for intuitive control
- RS-232/422 control

24 Models

I/O sizes:

8 x 4
8 x 8
12 x 4
12 x 8
16 x 8
16 x 16

all sizes are available with or without audio

CrossPoint Plus Series

12 models to choose from

- **NEW–** 425 MHz (-3dB), minimum, ultra-wideband video bandwidth, fully loaded
- **NEW–** Extron's exclusive Digital Sync Validation Processing (DSVP™) verifies active sources by scanning all inputs for active sync signals
- **NEW–** Excellent isolation between channels and extremely low electromagnetic emissions to minimize signal leakage in high security environments
- **NEW–** I/O grouping allows specific outputs to be grouped together for convenient wiring and switching
- **NEW–** Triple-Action Switching™ (RGB delay) blanks the screen during switching to eliminate glitches
- **NEW–** Executive mode for protection in unsecured environments

For complete details, visit Extron's Web site at:
http://www.extron.com/crosspoint
http://www.extron.com/crosspointplus

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Tweeker Use #58

CORDLESS POWER TWEEKER

One day ADTECH Systems, Inc.'s David Crepeau of Wayland, MA, and his colleagues ran out of short wall plate screws. While installing long wall plate screws, Crepeau was struck by a stroke of on-the-job inspiration: "Wouldn't a cordless power Tweeker be great!" So he made one—and it really works!

Send us your photograph of how you use the Tweeker. If we publish it in a future issue of ExtroNews, we'll give you a free VTG 150. Please send entries along with an explanation and photo to:

Extron Tweeker Contest
1230 South Lewis Street
Anaheim, CA 92805.

Extron Institute Upcoming Schedule, 2001

March 12-14	The Netherlands
March 13-14	Cincinnati, OH
March 24-25	Singapore
April 9-10	The Netherlands
May 3-4	Singapore
May 10-11	Anaheim, CA
May 14-15	The Netherlands
May 14-15	Philadelphia, PA
May 16-17	Philadelphia, PA
June 16-17	Las Vegas, NV

Upcoming Tradeshows, 2001

March 8-10	NSCA	Orlando, FL
March 21-23	INFOCOMM Asia	Singapore
April 18-20	E-Learning Conference & Expo	Washington, DC
April 23-26	NAB	Las Vegas, NV
June 13-15	INFOCOMM	Las Vegas, NV

ExtroNews

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We welcome your comments and contributions! Please submit ideas to:

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